

# Supercoset construction of Yang-Baxter deformed $AdS^5 \times S_5$ backgrounds

Hideki Kyono

Kyoto University  
Kitashirakawa  
Kyoto, Japan

Joint work with: Kentaroh Yoshida

We proceed to study Yang-Baxter deformations of the  $AdS^5 \times S_5$  superstring with the classical Yang-Baxter equation. We make a general argument on the supercoset construction. The supercoset construction is explicitly performed for some classical r-matrices and the full backgrounds including the Ramond-Ramond (R-R) sector and dilaton are derived. Within the class of abelian r-matrices, the perfect agreement is shown for well-known examples including gravity duals of non-commutative gauge theories,  $\gamma$ -deformations of  $S_5$  and Schrödinger spacetimes. As for non-abelian r-matrices, we will focus upon a specific example. The resulting background does not satisfy the equation of motion of the Neveu-Schwarz-Neveu-Schwarz (NS-NS) two-form because the R-R three-form is not closed.